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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/500,310

05/25/2005

Leif Bergstedt

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9852

23117

7590

09/07/2006

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EXAMINER

HOANG, QUOC DINH

ART UNIT

PAPER NUMBER

2818

DATE MAILED: 09/07/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/500,310	Applicant(s) BERGSTEDT ET AL.	
	Examiner Quoc D. Hoang	Art Unit 2818	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 25 August 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-5 is/are pending in the application.
- 4a) Of the above claim(s) 6-19 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-5 is/are rejected.
- 7) ☒ Claim(s) 1 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 28 June 2004 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date <u>6/28/2004</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Election/Restrictions

1. Applicant's election without traverse of Group II (claims 1-5) in the reply filed on 08/25/2006 is acknowledged.

Information Disclosure Statement

2. The information disclosure statement filed 06/28/2004 fails to comply with 37 CFR 1.98(a)(2), which requires a legible copy of each cited foreign patent document; each non-patent literature publication or that portion which caused it to be listed; and all other information or that portion which caused it to be listed. It has been placed in the application file, but the information referred to therein has not been considered.

Drawings

3. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they include the following reference character(s) not mentioned in the description: "α" in Fig. 1a, "θ" in Fig. 1b. Corrected drawing sheets in compliance with 37 CFR 1.121(d), or amendment to the specification to add the reference character(s) in the description in compliance with 37 CFR 1.121(b) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner,

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the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Objections

4. Claim 1 is objected to because of the following informalities: in claim 1, line 5, it is unclear what the applicant is referring to in the limitation "cavity has a top and a bottom side". Appropriate correction is required.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 1 and 3-5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wang et al., (US Pub No. 2004/0056560 hereinafter "Wang") in view of Hatamura et al., (US Pub No. 2002/0008078 hereinafter "Hatamura").

Regarding claim 1, Wang teaches a method of fabrication of a cavity (850) in a substrate (710) for a component for electromagnetic waves, the method comprising the step of:

providing said cavity (850) by removal of material from said substrate (710) through a chemical etchant of potassium hydroxide (KOH) or ethylene diamine pyrocatechol (EDP), so that the produced cavity has a top and a bottom side and sidewalls, and said cavity at one of said top and/or bottom sides

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exhibits an opening with at least four sides having at least two different adjacent angles ([0032] through [0043] and Figs. 6-8).

Wang teaches the a chemical etchant of potassium hydroxide (KOH) or ethylene diamine pyrocatechol (EDP), but does not teach removal of material from said substrate through immersing the substrate in a liquid bath of a chemical etchant.

However, Hatamura teaches removing of material from the substrate (layer 28) through immersing the substrate in a liquid bath of a chemical etchant ([0061] through [0064] and Figs. 8-14). Since Wang and Hatamura are all from the same field of endeavor, the purpose disclosed by Hatamura would have been recognized in the pertinent art of Wang. It would have been obvious to a person of ordinary skill in the art at the time of the invention was made to remove of material from the substrate through immersing the substrate in a liquid bath of a chemical etchant in order to obtain a plurality of rhombus-shaped cavities as taught by Hatamura, [0062]. The recitation "for a component for electromagnetic waves" has not been given patentable weight because the recitation occurs in the preamble. A preamble is generally not accorded any patentable weight where it merely recites the purpose of a process or the intended use of a structure, and where the body of the claim does not depend on the preamble for completeness but, instead, the process steps or structural limitations are able to stand alone. See *In re Hirao*, 535 F.2d 67, 190 USPQ 15 (CCPA 1976) and *Kropa v. Robie*, 187 F.2d 150, 152, 88 USPQ 478, 481 (CCPA 1951).

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Regarding claim 3, Wang teaches wherein the substrate (710) is made of silicon [0033].

Regarding claim 4, Wang teaches the component is a resonator [0029].

Regarding claim 5, Wang teaches wherein said substrate is etched from both sides [0032] and [0040]-[0045].

7. Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over Wang et al., (US Pub No. 2004/0056560 hereinafter "Wang") and Hatamura et al., (US Pub No. 2002/0008078 hereinafter "Hatamura") as applied to claim 1 above, and further in view of Song et al., (US Pat No. 6,362,706 hereinafter "Song").

Regarding claim 2, Wang teaches the resonator, but does not teach a component element which is inserted into the cavity in said substrate.

However, Song teaches a cavity resonator comprises a conductive layer arranged as a ground plane (200) covering said substrate (1000), said ground plane being provided with at least one coupling slot (210) and at least one conductor (400), said ground plane being connected to a component element (100), which is inserted into said cavity (500) in said substrate (col. 3, line 50 through col. 4, line 17 and Fig. 2C). Since Wang and Song are all from the same field of endeavor, the purpose disclosed by Song would have been recognized in the pertinent art of Wang. It would have been obvious to a person of ordinary skill in the art at the time of the invention was made to have component element which is inserted into the cavity in the substrate in order to provide a lower cavity film for the cavity resonator as taught by Song, column 3, lines 60-65.

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Conclusion

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Quoc Hoang whose telephone number is (571) 272-1780. The examiner can normally be reached on Monday-Friday from 8.00 AM to 5.00 PM.

If attempt to reach the examiner by telephone are unsuccessful, the examiner's supervisor, MinSun Harvey can be reached on (571) 272-1835. The fax phone numbers of the organization where this application or proceeding is assigned are (571) 273-8300 for regular communications and (571) 273-8300 for After Final communications.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Quoc Hoang
Patent examiner/AU 2818


09/01/2006